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Assessment

Validation of the English version of the Trust in Oncologist Scale (TiOS)

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ABSTRACT

Objective: The Trust in Oncologist Scale (TiOS) was recently developed and validated in The Netherlands to assess cancer patients' trust in their oncologist. In this study, we translated and further validated the scale amongst English-speaking Australian cancer patients, to establish cross-cultural validity.
Methods: The translated 18-item scale was administered to cancer patients (n = 175) from three Sydney hospitals. In addition to trust, we assessed patients' satisfaction, trust in health care, and background characteristics. Dimensionality, internal consistency, and construct validity of the translated scale were assessed.
Results: Psychometric properties of all items were acceptable. Trust scores were very high. Factor analyses indicated one-dimensionality of the scale. Internal consistency was strong. Moderate to high correlations were found between trust (TiOS) and its known correlates, i.e., satisfaction, number of previous consultations with the oncologist, and trust in health care, indicating good construct validity.
Conclusion: Trust is highly coherent, suggesting that cancer patients do not distinguish between separate dimensions of trust. Future research could clarify if trust is equally strong and one-dimensional among specific groups of cancer patients.
Practice implications: Both the English and the Dutch Trust in Oncologist Scales appear suitable for assessing cancer patients' trust reliably and validly.

1. Introduction

Cancer patients are confronted with a life-threatening diagnosis and face difficult and life-altering treatment decisions. Many patients experience distress, uncertainty and vulnerability [1]. A trusting relationship with the oncologist can alleviate patients' burden, increase involvement in decision-making and reduce the inclination to request a second opinion [2–5]. Hence, trust in the oncologist is important. However, since not much empirical research has shed light on why and how cancer patients' trust their oncologist [6], we know little about the realization, strength, predictors, and consequences of cancer patients' trust.

To gain a better understanding of patients' trust, one first needs to be able to assess it. The only instruments available to date were developed in the primary care setting [2,7,8]. The most recent of these, Hall et al.'s Physician Trust Scale [2], has been validated most extensively [9]. However, this scale might not be fully applicable to cancer patients because of the specific nature of the oncology setting.

We therefore recently developed an oncology-specific trust measuring instrument in Dutch, the Trust in Oncologist Scale (TiOS), and established its reliability and validity among Dutch cancer patients [10].

The suitability of the TiOS for English-speaking cancer patients has not yet been confirmed. To allow for cross-cultural comparison, we validated an English translation of the TiOS among English-speaking Australian cancer patients. Dimensionality, construct validity, and reliability were assessed.

2. Methods

2.1. Construction of the TiOS in Dutch

The TiOS was based on Hall et al.'s 10-item 'Physician Trust Scale' [2], and on qualitative data regarding cancer patients'

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explanations of trust [11]. A five-dimensional model of cancer patients' trust was constructed, encompassing *competence*, *fidelity*, *confidentiality*, *honesty*, and *caring*. Appropriate items for all dimensions were collected from the 'Physician Trust Scale' and related scales [2,7,12,13], or newly constructed. The resulting 33 candidate-items were pilot-tested. During questionnaire validation, the '*Confidentiality*' dimension was removed. The final 18-item scale comprised four dimensions, i.e., (1) *Fidelity*; the oncologist's pursuit of the patients' interests, (2) *Competence*; the oncologist's medical skills, (3) *Honesty*; telling the truth and avoiding intentional falsehoods, and (4) *Caring*; the oncologist's involvement, sympathy and devotion of attention to the patient. For a full description of the construction of the TiOS, see Hillen et al. [10]. The TiOS was translated into English following a forward-backward procedure [14].

2.2. Validity testing

2.2.1. Patients and procedure

Adult, English-speaking cancer patients in treatment or follow-up were recruited from four Medical Oncology and Radiation Oncology departments of three hospitals in the Sydney area. Dependent on department policies, patients were either approached face-to-face by a researcher (location 1), approached by their physician (locations 2 and 4) or directly mailed the questionnaire (location 3). All patients received an introductory letter and the questionnaire, leaving open the possibility to refuse participation. Ethics approval was obtained from the University of Sydney and Area Health Service Ethics Committees linked to the participating cancer centres.

2.2.2. Instruments

All 18 items of the TiOS consist of a proposition in the third person singular, with a 5-point Likert answering scale ('strongly disagree' (1) to 'strongly agree' (5)). Three items are negatively phrased. Mean trust (range 1–5) is calculated by averaging the responses.

Socio-demographics (gender, age, marital status, education level, ethnicity, mother tongue and religion) and disease characteristics (time since diagnosis, cancer site and treatments undergone, number of previous consultations with the present oncologist) were assessed. Satisfaction with the oncologist was assessed with the 5-item *Patient Satisfaction Questionnaire* (PSQ) [15]. An additional item asked whether patients would recommend their oncologist to their friends. Physical and mental Health Related Quality of Life (HRQOL) were measured with the 12-item short form health survey (SF-12) [16]. Finally, one item asked patients how much trust they had in the Australian health care system.

2.2.3. Analyses

For missing values, we used expectation maximization [17]. Using confirmatory factor analysis (CFA), we tested our 4-dimensional model first, then a uni-dimensional representation of trust. A good model fit would be indicated by non-significant χ^2, and Root Mean Square Error of Approximation (RMSEA) $< .06$ [18]. As in the Dutch sample, we expected uni-dimensionality, but also a reasonably good fit of our 4-dimensional model. We calculated internal consistencies (Cronbach's α), inter-item correlations and item-scale correlations for the TiOS. Construct validity was assessed by calculating Spearman's correlations between trust (TiOS) and its known correlates: satisfaction, trust in health care, and number of previous consultations with the oncologist. We expected that high trust levels would be strongly associated with high satisfaction, and moderately with strong trust in health care and a larger number of previous consultations [2,3,19,20]. Exploratory, we assessed correlations between trust and patients' HRQOL, socio-demographics and disease characteristics. No hypotheses were specified with regard to exploratory analyses. Analyses were performed using SPSS 16 [21], and Lisrel 8.5 [22].

3. Results

In total, 177 questionnaires were returned (response rate 70%, range 56–84% for the different locations). Data from two participants were excluded because of more than 25% missing data. Socio-demographic characteristics of the sample are shown in Table 1. All items, including their psychometric properties, are displayed in Table 2. Skewness was below 2 for all items, and item-scale correlations were >.3. Mean trust over all 18 items was 4.47 (SD = .50, range 2.50–5.00). The theoretically driven 4-factor model failed to converge in CFA. This was probably due to collinearity, as indicated by between-item correlations as strong as .8. Moreover, even when collapsing response categories 1 and 2, the distribution of trust scores over response categories remained uneven, including empty or near-empty cells. A one-dimensional model resulted in an acceptable model fit ($SB_{\chi^2}(137) = 200.73$, $p < .01$, and RMSEA = .05) [23]. Standardized item loadings on this factor were strong (mean: .80, range: .58–.91) [23]. Post hoc exploratory factor analysis, to check if a one-dimensional model fit would be confirmed when no assumptions were made about the data, further established the one-dimensionality of the TiOS.

Very strong internal consistency of the TiOS was suggested by Cronbach's α of .94 [24]. Item-scale correlations were acceptable

Table 1
Demographic, health and relationship characteristics of the sample ($n = 175$).

Age ($n = 174$)	Median	Range
	62	21–88
	N	%
Gender ($n = 175$)		
Male	76	43
Female	99	57
Educational level ($n = 175$)		
None/primary school	14	8
Secondary/lower level vocational school	103	59
College/university	58	33
Ethnicity ($n = 175$)		
Australian	144	82
Other	31	18
Religious ($n = 173$)		
Yes	146	84
No	27	16
Time since diagnosis ($n = 173$)		
<1 month	1	1
1–6 months	18	10
6–24 months	49	28
>24 months	105	61
Specialist about whom reported ($n = 175$)		
Radiation oncologist	38	22
Medical oncologist	137	78
Self-reported cancer site ($n = 175$)		
Breast	60	34
Genitourinary	49	28
Gastrointestinal	26	15
Gynecologic	10	6
Lung	9	5
Bone	5	3
Skin	5	3
Other	11	6
Number of consultations with present oncologist ($n = 175$)		
<3 consultations	15	9
3–5 consultations	26	15
6–10 consultations	43	25
11–15 consultations	35	20
>15 consultations	56	32

Table 2
Overview of all items of the TiOS, including their dimension, mean, standard deviation, skewness, and item-scale correlation.

Item	Content	Dimension	M^b	SD	Skewness	Item-scale correlation
1	Your doctor is very careful and precise	Competence	4.58	0.60	−1.4	0.73
2	Your doctor is totally honest in telling you about all the different treatment options available for your condition	Honesty	4.61	0.60	−1.6	0.71
3	Your doctor always gives you honest information about your prospects	Honesty	4.58	0.56	−1.1	0.67
4	Your doctor strongly cares about your health	Fidelity	4.58	0.59	−1.1	0.77
5	Your doctor always tells you everything you want to know about your illness	Fidelity	4.50	0.65	−1.5	0.65
6	You think your doctor can handle any medical situation, even a very serious one	Competence	4.50	0.68	−1.2	0.69
7	Your doctor always takes his/her time with you	Caring	4.57	0.67	−1.8	0.68
8	Your doctor explains everything so that you can consent to medical decisions	Fidelity	4.58	0.56	−0.9	0.69
9	Sometimes you worry that your doctor's medical decisions are wrong[a]	Competence	4.32	0.90	−1.5	0.57
10	Your doctor only thinks about what is best for you	Fidelity	4.50	0.65	−1.2	0.79
11	Sometimes your doctor does not pay full attention to what you are trying to tell him/her[a]	Competence	4.33	0.89	−1.5	0.58
12	Your doctor would always tell you the truth about your health, even if there was bad news	Honesty	4.50	0.67	−1.9	0.56
13	You have doubts whether your doctor really cares about you as a person[a]	Caring	4.32	1.02	−1.9	0.43
14	Your doctor listens with care and concern to all the problems you have	Caring	4.47	0.66	−1.2	0.79
15	Your doctor will do whatever it takes to get you all the care you need	Fidelity	4.49	0.70	−1.4	0.81
16	Your doctor is available for you whenever you need him/her	Caring	4.03	0.96	−1.1	0.59
17	You have no worries about putting your life in your doctor's hands	Global item	4.40	0.80	−1.4	0.66
18	All in all, you have complete trust in your doctor	Global item	4.57	0.63	−1.3	0.76

[a] Reverse-scored items.
[b] Five-point likert scale: 1 = totally disagree, 2 = disagree, 3 = as much agree as disagree, 4 = agree, 5 = strongly agree.

(range .43–.81) [25]. Inter-item correlations ranged between .2 and .8. As expected, mean scores on the TiOS correlated significantly with known correlates of trust, i.e., satisfaction with the oncologist (PSQ: r_s = .62), willingness to recommend the oncologist to others (r_s = .59), number of previous visits with the oncologist (r_s = .21) and trust in health care (r_s = .33). All correlations in the exploratory analyses were non-significant.

4. Discussion and conclusion

4.1. Discussion

In this study, the English version of the 18-item *Trust in Oncologist Scale* (TiOS) was validated. Mean trust scores were invariably high. Strong internal consistency, inter-item correlations and item-scale correlations suggest sufficient reliability. Construct validity was confirmed by strong correlations of TiOS scores with satisfaction and moderate correlations with number of previous visits with the oncologist and with trust in health care.

Importantly, we found TiOS scores to be one-dimensional, indicating that these patients do not distinguish between different aspects of trust, i.e., competence, fidelity, honesty, and caring. Although this distinction was slightly stronger among Dutch patients, we still concluded that trust was best considered as a one-dimensional construct. The present findings confirm this suggestion of one-dimensionality. The even weaker distinction between dimensions of trust by Australian patients could reflect a more homogeneous composition of this sample. Even though mean trust was equally high in both samples, the Australian data lack sufficient variation in trust scores. Very few patients reported weak trust in their oncologist. This lack of variation may be due to Medical Ethical Committee regulations, prohibiting the random and direct approach of patients by mail as employed in the Dutch sample. Recruitment via the participating oncologists may have resulted in selection bias towards including only strongly trusting patients.

Our repeated finding of one-dimensionality of patients' trust confirms earlier quantitative findings [2,3,7]. However, it contradicts qualitative findings suggesting that cancer patients do distinguish between dimensions of trust [11,26]. This apparent discrepancy deserves further research attention. As yet, it appears difficult to quantitatively expose patients' possible distinction between trust dimensions. Further validation among specific groups of cancer patients with likely more varying levels of trust should be conducted, e.g., among second opinion patients, immigrants, or patients in palliative care, to investigate if the TiOS is responsive to more pronounced dimensionality and varying trust levels.

4.2. Conclusion

The current results contribute to research on cancer patients' trust in their oncologist. Use of the TiOS allows further expansion of this field of study, resulting in better insight into the nature, predictors, and consequences of cancer patients' trust. Confidence in the cross-cultural validity of the TiOS enables its use in different countries, allowing direct comparisons between patients' trust levels internationally. Ultimately, this could improve patient care.

4.3. Practice implications

Our findings suggest that the English translation of the Trust in Oncologist Scale is suitable for use among English-speaking cancer patients in Australia and other countries with similarly organized health care systems. For the present we suggest that when applying the TiOS, a single score can be used. However, for a more refined understanding of patients' trust, one might test whether patients in a specific sample distinguish different dimensions of trust.

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